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DISPERSION AND DISSOLUTION ENHANCING AGENT FOR LOW WATER-
SOLUBLE SUBSTANCES
[MIZU NANYOSEI BUSSHITSU NO BUNSAN, YOKAISEI SOKUSHINZAI]

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[What is claimed is]

1. A water dispersion and dissolution enhancing agent for low water-soluble substances, characterized in that it contains an alkali metal salt of gluconic acid.
2. A water dispersion and dissolution enhancing method for low water-soluble substances, characterized in that 0.5 parts by weight or more of an alkali metal salt of gluconic acid is contained as against 100 parts by weight of a low water-soluble substance.

[Detailed Description of the Invention]

[0001]

[Field of the Invention] The present invention relates to a water dispersion and dissolution enhancing agent for low water-soluble substances and, more specifically, to a water dispersion and dissolution enhancing agent for low water-soluble substances which contains an alkali metal salt of gluconic acid.

[0002]

[Problem to be Solved by the Invention] Although powders of polysaccharides or proteins generally have high water solubility, when attempts are made to disperse and dissolve them in water (particularly when attempts are made to use a large amount), only the surface thereof is dissolved, a

viscous film is formed and the dissolution of the internal substances is interrupted, i.e., a so-called "lumpy" state; therefore, a considerable amount of time is required in order to uniformly dissolve such powders. Known examples of methods to solve this problem include a method wherein, when a food product is manufactured, a low water-soluble substance is mixed with other ingredients in advance, but the process for such methods can become implicated and there is therefore a demand for improvements.

[0003]

[Means of Solving the Problem] The present inventors conducted intensive research in order to solve the above-described problems, and discovered that the addition of a small amount of an alkali metal salt of gluconic acid to a low water-soluble substance could improve the water dispersion and shorten the dissolution time. More specifically, the present invention intends to provide a water dispersion and dissolution method for low water-soluble substances, as well as a water dispersion and dissolution enhancing agent, which contains an alkali metal salt of gluconic acid.

[0004]

[Modes of Implementing the Invention] The term "low water-soluble substances" as used herein refers to substances

which have high water solubility but, when they are dispersed and dissolved in water, a relatively long time is required for them to be uniformly dispersed and dissolved due to their poor dispersibility and solubility, and known examples of such substances include polysaccharides, such as sodium alginate, propylene glycol ester of alginic acid, xanthan gum, methyl cellulose, carboxymethylcellulose and pectin, and proteins, such as water-soluble gelatin and sodium caseinate.

[0005] Known examples of alkali metal salts of gluconic acid include potassium gluconate and sodium gluconate.

[0006] The inventive water dispersion and dissolution method for low water-soluble substances is preferably a method wherein a small amount of an alkali metal salt of gluconic acid is first mixed with a low water-soluble substance to be dissolved, such as polysaccharides and proteins, and the resulting mixture is dispersed and dissolved in water.

[0007] The proportion of an alkali metal salt of gluconic acid used in the present invention may vary depending on the low water-soluble substance to be dissolved, but is generally approximately 0.5 parts by weight or greater as against 100 parts by weight of the low water-soluble

substance, and is preferably 0.5 parts by weight to 10 parts by weight.

[0008]

[Embodiment] 1 g of a specific low water-soluble substance mixed with sodium gluconate was introduced into a beaker with 100 mL of water, and the time for the solution to be uniformly dispersed was measured while the solution was being stirred (water temperature: 25 degrees Celsius).

[0009] Result

[Table 1]

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Low water-soluble substances	Proportion of sodium gluconate (wt%)			
	0 (Comparative Example)	1 (Embodiment)	2 (Embodiment)	3 (Embodiment)
Sodium alginate	76	45	47	36
Propylene glycol ester of alginic acid	39	18	11	8
Methyl cellulose	69	39	33	17
Carboxymethylcellulose	70	67	65	43
Xanthan gum	23	21	21	18
Pectin	20	18	15	12
Water-soluble gelatin	216	100	107	123
Enzymatically hydrolyzed guar gum	13	6	5	5

Unit: minute

[0010] The time for the low water-soluble substance mixed with sodium gluconate was shorter than the case without sodium gluconate (Comparative Example), and the water dispersion and dissolution enhancing effect for low water-soluble substances by using gluconic acid was thus confirmed.